

What is claimed is:

1. A valve controlling fluid flow between an engine and a radiator in an automotive vehicle comprising:

a housing disposed between the engine and radiator, the housing having a chamber formed therein;

a radiator port extending between the radiator and the chamber for passing coolant flowing between the radiator and the chamber;

a bypass port extending between an outlet from the engine and the chamber for passing coolant flowing between the engine and the chamber;

an engine port extending between an inlet from the engine and the chamber for passing coolant flowing from one or both of the radiator and bypass ports between the inlet of the engine and the chamber;

a vane disposed within and pivotally coupled to the chamber for adjusting a flow of fluid within the chamber; and

a drive assembly operatively coupled to the vane for varying the position of the vane within the chamber wherein fluid flow between the radiator and engine is proportionally controlled based upon a predetermined operating temperature range.

2. The valve of Claim 1 wherein the housing includes a vane support portion integrally formed therewith.

3. The valve of Claim 2 wherein the housing comprises:

a first chamber wall extending radially from the vane support portion;

a second chamber wall extending radially from the vane support portion and spaced from the first chamber wall;

a third chamber wall extending arcuately between the first and second chamber walls;  
and

upper and lower chamber walls each coupled with the first, second and third chamber walls.

4. The valve of Claim 1 wherein the vane comprises a cylindrical base, a vane wall extending radially outward from the cylindrical base, and a plunger extending arcuately from the vane wall, the plunger terminating at a distal end.

5. The valve of Claim 3 wherein the radiator flow port includes an arcuate tapered neck formed adjacent the first chamber wall.

6. The valve of Claim 4 wherein the first chamber wall includes an annular slot formed therein having a vane seal disposed within the slot for sealing against the vane wall when the valve is in a sealing position relative to the radiator port.

7. The valve of Claim 4 wherein the plunger tapers in a direction from the vane wall towards the distal end of the plunger.

8. The valve of claim 7 wherein the taper of the plunger corresponds to the taper of the neck for providing a uniform gap between the plunger and neck.

9. A valve controlling fluid flow between an engine and a radiator in an automotive vehicle comprising:

a housing coupled between the engine and the radiator, the housing having a chamber and an arcuate neck for passing fluid between the radiator and the engine;

a vane having an arcuate plunger disposed within the chamber and pivotally coupled to the housing for moving the arcuate plunger in and out of the arcuate neck for regulating fluid flow between the radiator and the engine through the housing;

a drive assembly operatively coupled to the vane for varying the position of the plunger within the neck, wherein fluid flow between the radiator and engine is proportionally controlled based upon a predetermined operating temperature range.

10. The valve of Claim 9 wherein the housing includes a vane support portion integrally formed therewith.

11. The valve of Claim 10 wherein the housing comprises:

a first chamber wall extending radially from the vane support portion;

a second chamber wall extending radially from the vane support portion and spaced from the first chamber wall;

a third chamber wall extending arcuately between the first and second chamber walls;

and

upper and lower chamber walls each coupled with the first, second and third chamber walls.

12. The valve of Claim 9 wherein the vane comprises a cylindrical base, a vane wall extending radially outward from the cylindrical base, and a plunger extending arcuately from the vane wall, the plunger terminating at a distal end.

13. The valve of Claim 9 wherein the vane comprises a cylindrical base, a vane wall extending radially outward from the cylindrical base, and a plunger extending arcuately from the vane wall, the plunger terminating at a distal end.

14. The valve of Claim 11 wherein the first chamber wall includes an annular slot formed therein having a vane seal disposed within the slot for sealing against the vane wall when the valve is in a sealing position relative to first chamber wall.

15. The valve of Claim 12 wherein the plunger tapers in a direction from the vane wall towards the distal end of the plunger.